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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,885	10/25/2001	Anthony J. Ticknor	A070	7551

23623 7590 03/13/2003

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EXAMINER

ARTMAN, THOMAS R

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 03/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,885

Applicant(s)

TICKNOR, ANTHONY J.

Examiner

Thomas R Artman

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2. 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 9 and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Ziari (US 6,404,542).

Ziari discloses an optical integrated circuit (Fig.3) that comprises all the limitations and satisfies the method of:

- 1) (providing) a waveguide (item 314) extending axially through a portion of a base (item 312) along an optical path, and
- 2) (forming) a polarization swapping portion (item 310) formed in a portion of the waveguide using polarized light (col.3, lines 32-45).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-8, 10-16 and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziari and in view of Modavis (US 5,881,187).

Regarding claims 2, 7-8, 10, 13, 18, 21 and 23, Ziari does not disclose the illumination angle at which his polarization swapping portion is illuminated.

Throughout Modavis's discussion, the teaching is repeated wherein the illumination angle of the linearly polarized light dictates the orientation of the induced birefringent axes, as measured with respect to the principle axes of the waveguide. Furthermore, it is a well-known fact in the art to place a polarizing element, such as a quarter-wave or half-wave element, with its principle axes at approximately 45 degrees to the principle axes of the other optical elements/waveguides in the optical system.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the polarization swapping portion (half-wave optical element, in Ziari's case) by illuminating the waveguide at 45 degrees from its principle axes such that the portion behaves as a proper polarization swapping element.

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With respect to claims 3, 11, 14-15, 19 and 22, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a femto-second pulsed source as one of many options of illuminating the waveguide. Furthermore, without any specific criticality to the formation of the polarization swapping portion, any illumination technique common to the art would suffice.

With respect to claims 4, 12 and 20, Ziari does not specifically disclose the light source used in the formation of the polarization-swapping portion. Modavis, however, states that a common light source for waveguide writing include lasers for the appropriate wavelengths desired (UV to visible, col.3, lines 48-51). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a laser as one of several common, well characterized light sources for the appropriate radiation wavelengths.

With respect to claim 5, it would have been obvious to one of ordinary skill in the art at the time the invention was made that Ziari's polarization swapping portion, as well as Modavis' altered portions, has a refractive index different from the waveguide. This is a fundamental occurrence in photosensitive materials upon exposure to appropriate wavelength(s) of EM radiation.

With respect to claim 6, as stated by Ziari, his polarization swapping portion is, in fact, a half-wave plate.

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With respect to claim 16, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a prism for providing the polarized light from a laser to the waveguide. Lenses, mirrors, prisms, etc., are tools in a toolbox for one skilled in the art of optical devices and systems. All are well known and useful for standard, efficient light beam routing.


Conclusion

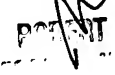
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dragone (US 5,625,723), Greene (US 5,506,925) and Albert (US 6,374,016) disclose polarization compensation techniques in optical waveguides using photosensitive materials.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (703) 305-0203. The examiner can normally be reached on 8am - 5:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

TRA 
March 4, 2003


ROBERT H. KIM
SUPERVISOR
TECHNICAL